

change Staff's position. Staff agrees with the benefits that are presented in the Appendix 9. A hearing is not necessary, so the Commission should rule based on the information contained in this report

The Commission has already ruled that interim LNP is societally beneficial and has required carriers to offer and tariff RCF. Service provider Local Number Portability (LNP) is essential for the development of effective local exchange competition. LNP is important because many customers will not change local service providers unless they can keep their old telephone number. Changing a telephone number results in inconvenience, costs to change stationary and repaint trucks, and loss of new business.

Market surveys bear out that service provider LNP is important to local exchange customers. A Gallup Organization study (Commissioned by MCI) finds that the majority of Maryland business customers (56%) are unlikely to change local service providers unless offered 10% to 20% rate reductions. Over 80% of Maryland businesses felt that retaining their company's number or numbers when switching local service was very important. A great majority of businesses (90%) are unlikely to switch if they have to change telephone numbers.

Residential customers will also benefit from LNP. In the Gallup poll, three-quarters of residential consumers reported number retention as very or somewhat important. Almost 75% of consumers stated they would be very or somewhat unlikely to switch local service providers if they had to incur a

telephone number change. Given a 20% reduction in service charges, the percentage of consumers that would be very or somewhat unlikely to switch providers is 50%.

This data shows that customer inertia and the lack of number portability are barriers to competition. Local number portability is essential. LNP enhances competition but new marketing possibilities will only be realized by perceptive, creative and skillful implementation.

From a public policy perspective, LNP is an integral part of the local exchange competition level playing field just as equal access was to long-distance competition. There are several sources of benefits: (1) public benefits of competition, lower prices and enhanced choice that accrues to all customers; (2) new marketing opportunities for the industry; and (3) benefits that will accrue to those customers that wish to port their telephone number.

The societal cost-benefit analysis should consider Maryland as a contributor and beneficiary of a total national permanent solution. A majority of Consortium members believe that eventually the costs and benefits of LNP will be spread nationwide. This is reasonable because the innovations that competition can bring to Maryland will depend on services that CLECs are able to deploy throughout the nation. Maryland consumers will benefit from the new services from CLECs who make a national roll out decision based on a large national potential customer base.

BA-MD does not believe that spreading costs nationwide will lower BA-MD's costs substantially. Staff's position is that the costs and benefits presented in this report are evidence that the Commission should consider to form the basis to mandate implementation.

Permanent LNP Costs

The permanent LNP costs across all carriers for 5 years exceeds \$132 million. These costs must be weighed against the benefits.

The cost estimates show wide variability. All facility-based carriers attempted to determine their costs for LNP. They believe their cost estimates are truly incremental to LNP. Staff recognizes and appreciates the difficult task of developing incremental cost estimates for permanent LNP. As switches and operations support systems perform many functions, it is difficult to determine what functionality is impacted solely by local number portability versus "competition" in general. Different approaches to network planning would also have had an impact on the cost estimates. Other differences in assumptions that would lead to variability in the cost estimates between carriers are as follows:

- Number and types of legacy (old, inherited) Operations Support Systems
- Level of understanding of changes required to legacy systems
- Number, types (vendor models) of switches
- Use of "list" versus "discounted" prices for software
- Different cost spreading assumptions to wider customer base

- Different cost modeling approaches

There were several cost assumptions of significant magnitude that required special attention. Staff believes that some of Bell Atlantic's reported OSS developmental costs should be spread to other Bell Atlantic states, because national deployment of LRN is the most likely scenario. These are detailed in the Proprietary Attachment. Staff also believes that BA-MD's reported churn costs (or customer service costs associated with customers changing co-carriers) is not a valid cost associated with a choice of technology (i.e., RCF vs. Permanent). These costs are excluded from the figures presented in Table 1, but are provided separately for consideration in the Proprietary Attachment.

Several CLECs included tariffed rates paid by CLECs to BA-MD for RCF. Staff believes that including tariffed rate payments by CLECs and incremental RCF costs estimated by BA-MD is double counting. Double counting occurs because payments paid by carrier A to recover the costs incurred by carrier B to provide a service to carrier A does not double the cost to the industry. Hence, from a societal cost-benefit analysis perspective, these payments are not included in the estimates, but are provided separately for consideration by the Commission.

In sum, some costs were labeled "disputed" and not included because of the large magnitude of error that they introduced. In contrast, BA-MD believes

these its "unspread" and "churn" costs are legitimate costs and should be included.

Permanent LNP Benefits

Staff believes that the benefits of permanent LNP outweigh the costs. Many of the benefits of permanent LNP are qualitative. One of the major benefits of permanent LNP is the avoidance of technical problems associated with RCF. This creates competitive neutrality

Simply stated, computer-telecommunications systems are only as powerful as their weakest links and permanent LNP bypasses a potential weak link. When another end office switch is placed in the middle of a call, as is the case with RCF, this additional routing can be a weak link which can degrade the overall performance of the system. The "weakest link" rule is typical of computer systems with improperly matched components, e.g., slower response time, incompatibility performance problems.

Permanent database LNP fosters network independence and innovation whereas interim RCF fosters dependency. In the future "network of networks", it is not in the public interest to have the enhanced functionality of one network rely on limited functionality deployed in another network. Although all networks will have a common set of functionalities to pass basic voice grade information, non-basic information such as out-of-band signaling and interactive broad band

capability may not function well if routed through older vintage plant. For these reasons, it is imperative to enable independent networks to interconnect and also function independently.

Permanent LNP provides the advantage of carrier independence by taking the RCF switch out of the service path. With this technical independence, marketers and inventors can introduce the new consumer applications of the future like Repeat Call and Return Call without worrying about how or whether it can function properly in an RCF environment. At one time, Caller-ID did not work under RCF, however, this problem was fixed in the BA-MD network.

Value-added services that rely on signaling information are important to telecommunications service providers and their customers. The provision of value-added services by BA-MD accounted for \$193.8 million in 1994, or 9.9% of total operating revenues.

Nobody knows now what new future applications will be created. Perhaps one will be a interactive broadband PCS picturephone application that will enable parents to call home and interact with their house and children. It is unknown at this time whether such a broadband service can be routed through a RCF switch (or whether interactive broadband PCS will be supported by LRN). Having a narrow band switch in the path of a broadband service would degrade functionality. Although multi-media services of the future are not yet a proven market, network dependency stifles creativity.

The continuation of RCF would be similar to having to ask a neighbor to upgrade their personal computer so that you can run your new Windows software, or even worse, so you can try to demonstrate and sell a new application program that runs under new Windows. The new software may not work properly. This dependency would not be in the public interest. Similarly, RCF should be viewed as a interim solution and Maryland should proceed quickly towards the permanent solution.

Technical details of the deficiencies of RCF are provided in Appendix 9. Staff does not dispute these technical deficiencies. BA-MD asserts that it has an advanced infrastructure, and therefore some of the RCF the deficiencies (such as degradation of CLASS services) are minimized compared to the deficiencies present in other parts of the nation. Permanent LNP is necessary to overcome these deficiencies.

As discussed above, RCF causes cost, delay, signal degradation and number confusion. These problems are caused by adding an additional switch and trunk groups to the call path. "Permanent" number portability eliminates these problems associated with the historic incumbent LEC assignment of numbering resources and monopoly position. Local number portability databases will enable consumers to choose freely among the various providers of local telecommunications services without being forced to compromise on service quality or features. The basic technology needed to develop and deploy "true" permanent number portability is available today although development

work is still required. There is simply no reason for the Commission or local exchange customers in Maryland to settle for anything less. The qualitative and quantitative cost-benefit analysis contained in this report justifies moving forward with permanent LNP.

In comments to the draft of Staff's report, BA-MD states "It is BA-MD's position that we do not support RCF as a long-term solution" and "BA-MD has never represented RCF as a long-term solution". Any proposal to adopt RCF as the permanent long-term solution will result in significant deficiencies which will degrade local exchange service for the customers of CLECs. The fact that BA-MD's network is in the middle of every call under RCF introduces delay, blocking, and other performance characteristics which impact service negatively. RCF has significant negative impacts on the ability of the CLECs to provide enhanced features, such as CLASS services. In addition, degradation may occur to future broadband services.

RCF was not designed for long-term service provider number portability applications. The call volumes and number of customers anticipated when RCF services were designed and deployed will not approach those required to support high market penetration portability needs. The potential for network disruption and malfunction increases significantly if RCF is used to support local network portability as the permanent solution

Under RCF, using two numbers to represent one customer can only accelerate the costly and disruptive NPA reliefs (adding area codes to the state). Permanent LNP uses only one number per customer

Another important concern is competitive neutrality. Staff's position is that call blocking and setup times under either RCF or permanent LNP could be engineered to provide acceptable absolute levels of service. However, RCF could introduce a perceptible consistent service contrast, between calls to ported and non-porting numbers. The incumbent LEC could claim in advertising that call completion is always better to numbers that have not been ported, so customers should better stay with the incumbent. Permanent LNP would eliminate these service contrasts and thereby eliminate any inappropriate advantage that one carrier could possibly have over another carrier. The result would be equally good service from both CLEC and incumbent LEC networks. BA-MD disagrees that a "perceptible consistent service contrast" exists.

There are services that are broken by RCF, and therefore do not function properly. Even if most CLASS features work most of the time under RCF, it could be devastating for new fledgling competition if they get a reputation as being somehow less than perfect. To ensure perfection, CLEC engineers would have to conduct much testing to make sure that CLASS features working through RCF performs properly to and from all switches from all parts of the country. This would place CLECs at a disadvantage in the timing and introduction of existing or new services.

Of course, adequate testing of permanent LRN would be built into the implementation timeline. However, once LRN is up and running, future CLASS feature deployments could be expected to run perfectly without onerous testing and "work-around" fixes.

In sum, the indefinite continuation of interim LNP is less cost-beneficial than the "true" permanent portability solution. As long as RCF is the only option available, CLECs will be relegated to "second-class" status, since the technical impacts of RCF would limit the ability of the CLECs to provide high-quality service. The Maryland Commission should order implementation of "true" or permanent local number portability throughout the state as soon as possible, with service to begin 3Q 1997. All carriers operating in the State of Maryland should be required and ordered to provide (or procure) permanent LNP capability for their networks.

ISSUE 2: QUICK IMPLEMENTATION VIA THE ILLINOIS STRATEGY

Staff supports adopting the Illinois Workshop technical strategy because it is more timely, hence pro-competitive. In contrast, the Bellcore technical strategy for permanent LNP will most likely delay permanent LNP and prolong the use of RCF. This option may create the impression that new fledgling competition is inferior in the new local marketplace because services do not work properly under RCF.

Staff supported the BA-MD proposed NPA exhaust overlay plan for Maryland because Staff believed that permanent LNP would be available in approximately the same time frame as the Maryland Area Code overlay. A delay of LNP beyond the 3rd Quarter 1997 timeframe would place CLECs at competitive disadvantage. The highly valued 410 and 301 area codes should be available and used equally by customers on both incumbent LEC and CLEC networks.

Potential savings from the Bellcore strategy are at this time unknown. Staff's view, based on discussions with industry experts, is that savings could be at best in the range of one-third of BA-MD's network costs initially (e.g., signaling network upgrades), and cause a delay of a year or more, based on estimates performed by Pacific Bell for California. This delay would not be beneficial because it would be harmful to fledgling competition and its ability to establish a positive reputation in the new local service marketplace. The Commission should mandate the implementation time frame of 3rd Quarter 1997 which would most likely require following the Illinois Workshop technical strategy.

Technical "competitive neutrality" is important to providing competition a fair opportunity to succeed. There have been discussions of differences in call setup time under the Bellcore strategy and whether this difference would be perceptible to end users. If Bellcore can discover a technology that reduces costs, maintains competitive neutrality and does not cause a delay in the 1997

implementation time frame, then it could be considered by the Consortium. The Consortium may consider creative means and parallel paths to minimize costs, but it should achieve the 3rd Quarter 1997 implementation time frame. Any Bellcore strategy should not be implemented at the sole discretion of Bell Atlantic or the other companies that are working with Bellcore.

The Bellcore strategy to avoid dipping all calls and having a single platform, trigger and service logic is commendable in what it is trying to accomplish. To date, there is no evidence yet as to how much these accomplishments are worth in terms of cost savings. Considering an upper bound on savings, these do not outweigh the benefits of quicker deployment of permanent LNP and the benefits that competitive neutrality will have on the Maryland market.

The Illinois strategy is no different than what already exists and works in the network. It would require several different platforms and triggers. There is already a variety of switches in the BA-MD network because it is prudent to have competing suppliers. There are differences in services deployed from different switches. BA-MD has demonstrated that these differences can be managed and engineered to work correctly. Similarly, vendors and carriers should be expected to perform the series of tests necessary to ensure that permanent LNP works properly from all switches, platforms and triggers.

There are technical benefits to having several types of service logic platforms and triggers initially and having a phased approach to the technical

implementation of LNP. These benefits include learning about the suitability of the various types of triggers and more timely knowledge of the functioning of all LNP network components. An analogous example would be the early development, introduction and use of personal computer software, versus the later development of a single standard graphic interfaces (e.g., Macintosh, Windows). It would not have been beneficial to delay the introduction of the first spreadsheet and word processor programs, in 1980 under the expectation that these programs could later be programmed to "feel the same" under a graphic interface. If technology always had to wait for a perfect solution, then this would deprive people of the early benefits of the technology

ISSUE 3: COST RECOVERY

Section 251(e)(2) of the Telecommunications Act of 1996 provides that "[t]he cost of establishing telecommunications numbering administration arrangements and number portability shall be borne by all telecommunications carriers on a competitively neutral basis as determined by the [Federal Communications] Commission."

To comply with the Act, the costs of permanent local number portability should be spread out across all telecommunications carriers, with no unique

charges to be imposed on any particular segment or class of carriers or their customers.

One competitively neutral option for cost recovery is "pooling." The costs of all carriers would be determined and summed. Funds would be collected to cover the summed costs based on relative market share (e.g., Maryland revenues, or total intra-state minutes of use, local lines, ported NXX codes). The pooling method would require a pooling of costs and revenues and distribution to effectuate recovery.

Pooling may be used when recoverable costs are easily quantified and verified. When recoverable costs are not easily quantified and verified, this method should be avoided because it could lead to contention.

For NPAC costs, CLECs and Staff recommends costs be recovered based on a pooling method. BA-MD abstained from voting on this issue. All local exchange carriers (LEC, CLECs) would be required to contribute funds using assigned portable NXX codes as a basis for allocation. NPAC costs are easily quantified because NPAC services are contracted for. This method appears to be consistent with the legislation.

For network and Operation Support Systems costs, CLECs and Staff recommends each carriers pay for their own costs. These costs are difficult to quantify and verify. Vendors are very sensitive about sharing their quotations made to one customer network provider with another. This method would also be consistent with the legislation.

Staff believes that each carrier should bear its own network costs and a portion of the shared NPAC costs. Bell Atlantic should bear most of the "societal" costs because it has most of the customers, and its customers benefit from the competitive pressures brought by enhanced competition. In contrast, Bell Atlantic believes that entrants should bear most of the costs, because their customers benefit from portability. The two cost recovery alternatives stem from two divergent philosophies. Staff believes all citizens in the state benefit from enhanced competition and downward pressures on costs and prices resulting from competition. In contrast, BA-MD believes only the citizens that actually choose a competitor benefit from competition. This is incorrect because competitive markets and the abundance that results from competitive markets benefit all.

BA-MD is seeking authorization from the Commission to recover the associated costs from the CLECs. Under the Bell Atlantic Competitor Charge (CC) method, the costs of number portability would be paid by entrants to the incumbent. In a Steering Committee meeting, BA-MD proposed several options, one being a per-line charge of \$36-\$275 per month. These amounts exceed the \$18 Competitor Contribution Charge (CCC) rejected by the Commission in Case 8584 Phase I and the \$18 Cost of Ubiquity charge rejected in Phase II. BA-MD believes that the "pooling" and "each carrier pay their own" methods are not competitively neutral.

Staff recommends the "each carrier pay their own costs" and "pooling" cost recovery methods. Under these methods, each carrier would either (1) recover their LNP costs from their end users through end-user prices or (2) not recover the costs and have their shareholders absorb the LNP costs under the rationale that shareholder value can be enhanced in other ways. BA-MD's CC method should be rejected because it is inconsistent with the federal legislation.

A detailed cost estimation framework developed by the Consortium is shown in Appendix 11. Staff would support some rate adjustment for BA-MD, but not an explicit surcharge. Customers do not like to see a new charge on their bills.

Staff recommends that BA-MD be permitted to recover its costs through rates which are under the jurisdiction of the Commission. The Commission should establish specific goals for competition at the onset of the alternative regulatory plan. For example, the Commission should establish a goal that all Maryland customers in the Baltimore and Washington LATAs be able to port their local number to competing providers via permanent local number portability by 3rd quarter 1997. The Salisbury and Hagerstown LATA's should follow in 1998 and 1999 respectively. This mandate would serve to ensure that the framework necessary for a competitive marketplace is proceeding concurrently with the price cap plan.

Funding for achievement of permanent local number portability could be considered as a part of the initial start-up revenue reductions and exogenous factor financial adjustments and flows indicated by the plan.

The Commission should earmark a portion of the start-up revenue reduction recommended by Staff towards a "down payment" for funding permanent LNP. Once BA-MD's recoverable amount of LNP costs is better determined, if the down payment is short of the total amount, then the residual could be funded via an exogenous rate adjustment. BA-MD should petition the Commission for an exogenous adjustment during the life of the plan.

For example, if the Commission found in Case 8715 that a \$100 million rate reduction was appropriate, it might order only an \$80 million reduction, thus providing the company with \$20 million of annual revenue as a downpayment to cover the initial costs of permanent LNP. This \$20 million revenue adjustment would continue until initial LNP costs are recovered over a 60 month period, then revert to a rate reduction.

BA-MD argues that cost recovery should be tied to determining cost-benefits. To BA-MD, the following test is relevant. If new entrants had to pay all LNP costs (own costs plus Bell Atlantic's) would they still want permanent LNP? Under Bell-Atlantic's test, entrants must demonstrate the societal cost benefits by actually paying all permanent LNP costs including Bell Atlantic's costs. If entrants are not willing, then the societal costs must outweigh the benefits and permanent LNP should not be implemented.

Staff strongly disagrees with BA-MD's societal cost-benefit test. Staff believes that societal cost benefits are demonstrated by the qualitative and quantitative analysis presented in this report. If CLECs are willing to bear their own costs and are willing to contribute to shared costs, this is sufficient. It is not necessary for CLECs to demonstrate the societal cost-benefits of LNP by paying their own costs plus BA-MD's costs for permanent LNP. The CLECs have indicated to the Consortium that if local exchange competition was implemented 80 years ago so that all carriers now had an equal market share, they would all be willing to bear an equal portion of LNP costs. Bell Atlantic's position appears to be that new entrants are by default "cost causers" and therefore should have to pay all BA-MD's costs. This position should be rejected. BA-MD should realize that the State has already bestowed onto BA-MD an enormous lead over the new competition, and should not expect a greater advantage than it already enjoys.

ISSUE 4: LIMITED LIABILITY COMPANY

Staff recommends that a limited liability company (LLC) be established to issue the RFP because it will protect members from undue liability and provides the RFP bidders with some comfort that an established legal entity is issuing the RFP. Staff recommends that the Commission direct that an LLC be established,

and that all carriers certified to provide local exchange service in Maryland be required to be a member (i.e., BA-MD, AT&T, MCI, TCG, MFS).

In the process of drafting the LLC operating agreement, a question has arisen about voting rights, and the role of the Staff and the Commission as final arbiter of any disputes in the unlikely event that they can not be settled within the company. The current draft of the LLC operating agreement establishes a dispute resolution procedure similar to the mechanism recommended by Staff and approved by the Commission in Case No. 8584-II. Hopefully, only disputes of major significance that could not be resolved through this procedure would be brought before the Commission.

ISSUE 5: NEXT COURSE OF ACTION

In a letter dated November 1, 1995, BA-MD stated that it wants a national solution to be adopted before the Consortium "waste[s] significant amounts of money and [is] forced to incur even more expense to transition to the national standard." Since BA made this statement, several events have occurred. Additional state LNP work groups (6) and state Commissions (2) have adopted LRN and the Telecommunications Act of 1996 became law.

According to the Act, to be approved to provide in-region services, a BOC must offer access and interconnection in compliance with a 14-point competitive checklist that includes: interim number portability through remote call forwarding,

and direct inward dialing trunks, or other comparable arrangements, until the FCC issues regulation requiring number portability. An FCC order is expected in May, although it is not known whether this order will be determinative of the FCC's position on LNP establishing detailed rules, or simply draft guidelines for state regulators to follow or just be a procedural order establishing a framework for a federal examination of LNP issues.

The following state task forces have now adopted LRN: IL, MD, CA, GA, CO, NY, FL. The following Commissions have adopted LRN: GA, NY, IL. It appears unlikely that another standard will emerge that will supplant LRN. The Maryland Commission need not and should not wait for the FCC to act. The Commission would be safe in adopting LRN now because it will most likely become a national standard.

BA-MD contends that the "Illinois implementation of LRN will not be the standard." Staff believes that the Illinois implementation will be the national standard. If not, then Maryland resources can be easily redeployed (e.g., some additional programming) to accommodate the standard. The same physical equipment would be needed regardless of the standard. By affirming the Illinois technical strategy and the 3rd Quarter 1997 target date for implementation in Maryland, a good standard will emerge. Waiting for Bellcore to develop a better standard will only delay the process as Bellcore could search endlessly for the perfect solution, most likely significantly enlarging the time before any database LNP can be implemented.

The Consortium has struggled with the issue of whether the Commission intended in its Order for the Consortium to only develop or actually implement a permanent LNP solution. Developing a solution requires personnel resources for planning purposes whereas implementation requires capital outlays. The “develop versus implement” issue is a basic question that is debated in almost every Steering Committee meeting.

All basic policy issues discussed within this report are now ripe for decision. A decision is needed to move forward. The Commission should issue an order consistent with Staff’s recommendations, but include in that order a caveat that the Consortium should follow any rules established by the FCC (e.g., in May 1996) and that the Commission will accept petitions to amend its order after the FCC issues its ruling. The Commission should rule now to implement permanent LNP so that BA-MD has clear direction on the need for permanent LNP in Maryland. Time should not be lost waiting for a FCC decision. With this order, critical Consortium activities will continue. Without an order, they may stop or be slowed.

The CLECs, IXC’s and Staff recommend that all carriers proceed with implementation as quickly as possible. See Appendix 12 (Letters from CLECs). The Commission should specify how and when cost recovery will be decided so that planning may continue and equipment procurements may begin. The Commission need not specify now the total dollar value to eventually be

recovered by BA-MD. The total dollar amount will be specified at a later time when more finalized quotations are received from BA-MD vendors.

Implementation of permanent LNP is critical. The Commission must ask whether it wants competition to have a fair opportunity to succeed. If the answer is affirmative, then permanent LNP by 1997 is a must.

Conclusion

All parties agree that the Commission should issue an order providing the Consortium with further direction on permanent LNP. Staff recommends that the Commission be pro-active, act first, and order permanent LNP implementation before the FCC ruling, subject to possible modification when the FCC rules are available. BA-MD believes the FCC should act first. For the stated reasons, the Staff and the telecommunications carriers serving the State of Maryland make their respective recommendations contained herein, and ask the Commission to decide on the appropriate future course of action as quickly as possible.

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**Staff's Second Quarterly Report on the
Maryland Local Number Portability Consortium**

Appendix 1

Appendix 1

MD CONSORTIUM STRUCTURE

